Space Weather Forecast

Issued on Tuesday, 14 November 2023 at 12:13 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of Moderate-class flares, risk declining through the period. Slight Chance of a G1/Minor Geomagnetic Storm on Days 1 and 2 (14-15 Nov).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with occasional Common-class flares in the last 24 hours. There are five sunspots currently on the visible solar disc, all of which lie in the western hemisphere. Close to the northwest limb is the largest region but this can no longer be clearly seen. Two further regions are both near the southwest limb and are also becoming difficult to assess, although one is showing some signs of developing minor magnetic complexity. The remaining two regions are both relatively straightforward at the present time.
No Earth-directed Coronal Mass Ejections (CMEs) have been observed in available imagery over the past 24 hours.
Solar Wind / Geomagnetic Activity: Solar winds showed declining CME effects, perhaps with a second weak CME arrival around 13/1620 UTC. Wind speeds were mostly at slightly elevated levels between 380-480 km/s. The total magnetic field strength was initially weak but became moderate at 13/1620 UTC. The north-south component was weakly negative at first, gradually becoming positive, moderately so at times. Geomagnetic activity has been Quiet to Unsettled (Kp 0-3).
Energetic Particles / Solar Radiation: Solar radiation remained at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to remain at Low levels, with a chance of Moderate-class flares at first. The probability of Moderate-class flares gradually declines through the period as several sunspot regions rotate off of the disc. No significant new or returning regions are expected to rotate onto the visible disc during the next four days.
Solar Wind / Geomagnetic Activity: A slow CME may give a glancing blow on Day 2 (15 Nov). Impacts are expected to be very limited in association with this low probability potential arrival. Current solar wind speeds have declined to around 380 km/s, likely under weak CME influence. This is expected to continue to wane through Day 1 (14 Nov). A further small equatorial coronal hole may cause a slight enhancement to solar winds on Days 2-3 (15-16 Nov), with the fast wind perhaps coinciding with the glancing CME.
Geomagnetic activity is expected to be largely Quiet to Unsettled (Kp 0-3). There is a chance of Active (Kp 4) intervals and a slight chance of an isolated G1/Minor Geomagnetic Storm (Kp 5) on Day 1 due to declining CME effects, and again on Day 2 if there is combined CME and fast wind influence.
Energetic Particles / Solar Radiation: There is a slight but declining chance of S1/Minor Radiation Storm conditions during the period should any sunspot regions produce significant flares. Probabilities begin to wane later in the period as these regions rotate well beyond the western limb.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	25	20	15
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	2	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.